DOCUMENT RESUME

ED 366 228 FL 021 854

AUTHOR Barron, Colin
TITLE Steppe by Step: A Cultural Approach to Language Tasks.
PUB DATE [94]
NOTE 16p.
PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Acculturation; *Class Activities; Classroom Techniques; *Computer Science; *Engineering Education; English (Second Language); *English for Special Purposes; Foreign Countries; Higher Education; Language Role; Second Language Instruction; *Socialization

ABSTRACT

In this University of Hong Kong ESP assignment, an approach to the teaching of English for Special Purposes (ESP) that addresses: (1) the role of language in the target discipline; (2) the socialization of the learner into the disciplinary culture; and (3) the role of the discipline in ESP instruction is presented, and illustrated. In the project described, small groups of first-year computer engineering and computer science students design and construct a crane out of paper and cellophane tape only, with limited but specific guidelines. The cranes are then tested for strength in a laboratory, and the students write reports. The crane project is viewed not as an instructional activity but as a "task," defined as a unit of social action in the process of constructing knowledge as an individual becomes a member of a culture; it is socially determined but individually interpreted. "Task" differs from "activity" by its long-term aims, social (vs. individual) construction, role in the development of cognitive cultural skills, and purpose in producing competent members of society. It is concluded that such a task encourages construction of knowledge through socialization among students, the discipline's teachers, and the ESP teacher, and is therefore a more effective model for ESP instruction. (MSE)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

Steppe by step: A cultural approach to language tasks

ED 366 228

Colin Barron
English Centre
University of Hong Kong

Introduction

At one end of the ESP spectrum we have the Spack model, which is independent of the serviced discipline:

> "To initiate students into the academic discourse community, we do not have to change our orientation completely, assign tasks we ourselves cannot master, or limit our assignments to prescribed, rule-governed tasks. We can instead draw on our own knowledge and expand the knowledge and abilities of our students." (Spack 1988: 47)

and:

> "The materials we use should be those we can fully understand. The writing projects we assign and evaluate should be those we are capable of doing ourselves." (Spack 1988: 41)

At the other end of the ESP spectrum is the Widdowson model which is fully mimetic of the serviced discipline:

> "ESP is (or ought logically to be) integrally linked with areas of activity (academic, vocational, professional) which have already been defined and which represent the learners' aspirations. The learning of ESP is in consequence an essentially *dependent* activity, a parasitic process, and it follows that the pedagogy of ESP must be dependent too. It has no purposes of its own; it exists only to service those that have been specified elsewhere." (Widdowson 1983: 108-109; emphasis in original)

Most ESP teachers will probably feel sympathetic towards one of these two positions. Both views are, I believe, untenable because they are alteric and mimetic, although in different ways, and are based on a theory of deficiency. They assume language to be an independent system, a tool, which can be

FL021854

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Barron
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

described structurally and functionally and taught independently of social, cultural and political factors. The concept of social and cultural awareness is present in the task, an important feature of many ESP courses.

In this paper I am not going to take up a position in the middle of the spectrum between these two unidimensional models. I am going to place ESP firmly within the multidimensional space that constitutes the students' chosen disciplinary culture, not as an adjunct that either mimics the disciplinary culture, or provides an alternative. The multidimensional space includes social, cultural and political factors as well as functional ones. Socio-cultural factors are primary variables in ESP because it is a part of education whose purpose is to produce competent members of society and because language is a part of a unified theory of social action. "Language is not acquired without culture" (Ochs 1988: 38), so that socialisation through language should be an important factor in ESP.

ESP needs a model of the part language plays in the socialisation of novices into their disciplinary cultures; a perspective that looks at the multidisciplinary nature of disciplinary cultures, one that sees it as a unified system of social action linking events, actions and processes with linguistic and generic features. A multidimensional space is complex, so I will provide a map to guide the ESP teacher through this space, and to show the way forward to answering the questions posed by Spack:

1. How much responsibility do we have in assisting to initiate the students into the cultures of their chosen disciplines?

2. How much knowledge of the serviced discipline is needed by the ESP teacher?

3. What are the most appropriate sources of materials for the students?

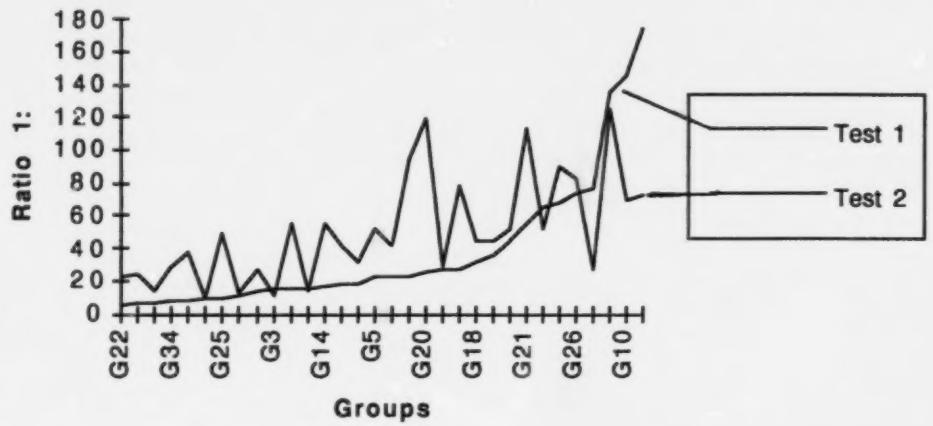
The Project

The project is called "Design and Make" and is the fourth and last in a series of projects for the first-year computer engineering and computer science students at the University of Hong Kong. The project is quite simple in design. In it the students design and make a crane out of paper and sellotape only. They are provided with a wooden base on which to place their crane. Each class is divided into groups of four students or so. Each group designs a crane according to the specifications given (see appendix). They then make the crane. No limit is given on the amount of paper and sellotape that each group may use, but weight is an important consideration because the completed cranes are rated according to their mass: applied load ratio.

The cranes are tested in one of the engineering laboratories by applying weights to the ends of the cranes until they collapse or deform markedly from the vertical. The tests are conducted twice so that the students can learn

from the lessons of the first test and redesign their models to improve their results. An engineering technician is available during both tests to explain to the students how and why their cranes fail. They then use this information in their written reports. The results of all the groups are collated and given to the students so that they can compare their results with the rest of the class, and so they can determine the optimum value. The ratios ranged from a low of 1:5.7 to a high of 1:174, i.e. the latter crane bore 174 times its own weight before collapsing. Most of the groups improved their result on the second test, some considerably so. The few groups which did not achieved a result only marginally worse (fig. 1).

Fig. 1 Project 4 Results



The handout for the project consists of one sheet and this generates four to five weeks of work. Supplementary handouts on report-writing are given during the project, but even these are kept to a minimum because the students are expected to determine what goes in their reports based on what they do, how they do it, why they do it, and their results.

The entire course was evaluated at the end of the year. The design and make project proved to be very popular with the students, even though it was not directly related to their discipline. Figure 2 shows the relative popularity of the projects in 1993.

Fig. 2 Students' preferences for projects (N = 99)

Project	1	2	3	4	Press dossier
1 (best)	11	7	37	41	0
2	18	21	25	21	2
3	26	13	13	15	9
4	19	21	13	8	20
5 (worst)	11	13	5	3	25

The table shows the actual number of students who rated the projects from best to worst. Projects 3 and 4 were clearly the most popular, with 42.7% of those who responded putting the design and make project (project 4) first, i.e. as the best/most interesting. A further 24.1% of respondents placed it second, i.e. nearly 70% of the students rated the project very highly. Project 3 required the students to choose their own topic. Projects are rated very positively if their objectives are syntonic with the expectations of the students' chosen disciplines and also require students to make a large contribution .

The comments made by students on their reasons for liking or not liking the design and make project are instructive. This project attracted more positive comments than the other projects. It also attracted fewer negative comments than the others. Question 26 on the evaluation form was an open-ended one which asked "Which were the best/most interesting parts of the course?" The design and make project 4 produced the largest number of responses to this question. Question 27 asked "How could this course be improved?" Several replies were "more projects like no. 4".

Both the positive and negative comments on the project are revealing. The positive comments stress relevance, cognitive development, co-operation and socialisation (fun), e.g.:

relevance - "appropriate for engineering"; "useful when technical reports needed"

the fun aspect - "like a game"; "learning many things but doing little"; "light work load". This project was deliberately placed at the end of the course for these reasons, because at this time of the academic year the students are overloaded with work in their other subjects. So the project satisfied that criterion. Language as social action.

cognitive development - "stimulates thinking"; "learn something other than English"; "learning many things but doing little". Again these were objectives of the project. Language cannot be acquired without culture.

co-operation - "teamwork"; "independent work". I am not sure what this means, but I take it to mean independent of the teacher since all the students worked in groups. Another objective of the project. ESP/EAP is not parasitic, mimetic or alteric.

The negative comments were far fewer and concentrated on irrelevance and technical matters:

relevance - "irrelevant to CE" (computer engineering)

fun - "wastes time"

cognitive development - "can use existing data". I am not sure what this means as this was the first time that the project had been done, so no data existed.

co-operation - "material written by non-technical personnel". This is interesting because the handout was written by an engineer.

The comments indicate the awareness that computer engineering and computer science students at the University of Hong Kong have of the relevance of tasks and the relationship between language and their disciplinary culture and their ethnic culture.

Task

I am using the notion of task here as a unit of social action. We need to distinguish between 'task' and 'activity'. Both are used indiscriminately in the literature to refer to the kind of project we are discussing here. Long (1985), Nunan (1988) and Mohan and Smith (1992) all use the term task. Mohan and Smith define it as a common unit of "both language teaching and learning, and content teaching and learning" (Mohan & Smith 1992: 82). Task is also an important unit of activity in work, and an important unit in culture and socialisation in anthropology, e.g. Lave's (1977) study of tailoring in Liberia, and Childs and Greenfield's (1980) study of Zinacanteco weavers in Mexico, where adult task-based talk varied with the specific weaving task and the level of skill of the child (novice).

Mohan (1986) and Ochs (1988) use the term activity in the same sense. For Ochs, "activity is both a behavioral unit, in the sense of a sequence of actions associated with particular motivations and goals, and a process, in the sense of praxis" (1988: 14). For Mohan, "an activity means a social practice, a form of social life that has a publicly acknowledged structure and standards" (1986: 48), "a combination of action and theoretical understanding" (1986: 42).

Language teachers have tended to adopt the behavioural, functional definition of a task as a unit whose aim is its successful completion. For example, Long defines a task as:

> "a piece of work undertaken for oneself or for others, freely, or for some reward ... examples of tasks include painting a fence, dressing a child, filling out a form, buying a pair of shoes, making an airline reservation, borrowing a library book, taking a driving test, typing a letter, weighing a patient ... In other words, by 'task' is meant the hundred and one things people do in everyday life, at work, at play, and in between." (1985: 89; quoted in Nunan 1988: 85)

Nunan (1988: 85) criticises the this functional notion of the task in the task-based syllabus developed by Long and Crookes (1986) because it is unitary:

> "the specific nature of the task and the content on which it is based are unimportant ... as long as learners are productively engaged in a task, (so that) they will be acquiring the target language."

A task is not an end in itself. It is a unit of social action in the process of constructing knowledge as an individual becomes a member of his/her culture. A task is socially determined but individually interpreted, because "for any social behavior, there may be different *realms* of understanding that experience" (Ochs 1988: 7; emphasis in original). It is a means by which knowledge is exchanged and a novice is socialised into becoming a member of the culture. Language and socio-cultural knowledge are interdependent (Ochs 1988: 14). The specific nature of the task and the content are important because "language is not acquired without culture" (Ochs 1988: 38). We also need to avoid the ethnocentric pitfall of determining and judging tasks from the viewpoint of a particular culture, be it ethnic or disciplinary. Tasks we give the students should therefore be those that are important in their cultures.

I therefore wish to propose differences between activity and task. (1) The aims of an activity are short-term, its successful completion, and it may or may not be part of a task, while a task has long-term aims - the maintenance of the culture, and consists of one or more sub-tasks. (2) A task is socially constructed, while an activity is often individually constructed. (3) Tasks have the purpose of initiating novices into the culture through their participation in joint tasks with more knowledgeable persons. Tasks are thus critical for the development of cognitive skills (Ochs 1988: 15). (4) Task is an important concept in education because the purpose of education is to produce competent members of society. An educational task may consist of one or more skills or activities, but its purpose is not the completion of the skills or activities per se, but the maintenance of the culture . It is thus part of a much bigger system, a system of delayed exchange whereby the experts pass on their knowledge to initiates, who in turn pass on their knowledge later, but not necessarily in exactly the same form. The return is social rather than

functional, the satisfaction of knowing that the culture will be maintained through an active and dynamic process of socialisation.

Discussion

The crane project is a task that is socially determined by the teacher but individually interpreted by the students. It is determined by the teacher in order to give the students practice in problem-solving in engineering, specifically in invention, one of the three kinds of engineering problems (Higgins et al. 1989: 171). This kind of problem determines the method of solving it, the STEPPE method (Higgins et al. 1989: 172), which consists of:

1 State the problem
2 Think about possible solutions
3 Evaluate solutions and choose one of them
4 Present the chosen solution
5 Produce the chosen solution
6 Evaluate the process of problem-solving

But the project is individually interpreted in that the students are free to interpret the problem in any way they wish. Individual interpretation is shown most clearly in the variety of designs and models of crane that they produce. But in addition, the students interpreted the instructions rather more freely than we had intended. Some groups interpreted the instruction to use only paper and sellotape to their advantage by using sellotape as a structural member. Since sellotape has a much greater tensile strength than paper, their results on the first test were very impressive. This can be seen on figure 1 above where the results of the first test suddenly take off at about 1:30.

social a unit of action in the process of the students' construction of knowledge in engineering. But it is not mimetic. It deliberately does not imitate anything in the students' engineering course, although it is similar to other tasks they do. Its purpose is to take the students through analytical and socialisation processes to arrive at a synthesis which exemplifies one type of problem-solving in engineering, invention. Research into disciplinary cultures shows that different disciplines have different key concepts. For example, "in fundamental-particle physics, solid-state physics, and molecular biology, discovery is a central notion... whereas in mechanical engineering the concept is largely replaced by that of invention" (Becher 1984: 178-179).

Although the project is socially determined, the project is very successful in generating a considerable amount of discussion and comment. So the students determine the outcome of the task and regulate the considerable amount of social interaction that takes place. This is evident from their comments in the evaluation of the project; "like a game", "teamwork", "stimulates thinking".

The project exploits the task as a unit of socialisation for the students into their disciplinary culture because neither the task nor the product, the written report, are ends in themselves. Socialisation is the third element, a necessary element, which links the analytical level of determining the linguistic requirements of a report with the synthetic level of satisfying the objective of the task, practice in the problem-solving technique of invention. This element is the process through which knowledge is constructed. Socialisation determines the outcomes and thus establishes power relationships. Socialisation is quite simply, in Ochs' definition, "the process by which one becomes a competent member of society" (1988: 5). In the crane project the students socialise through language ("like a game"), and socialise to use language ("teamwork"). It is one step on the way to enabling the students to become competent members of the engineering culture, in this case through one of the key concepts in engineering, invention.

The use of terms such as 'step' and 'level' may indicate that the socialisation model operates at three discrete levels. This is not the case. The three steps or levels, that of the task or the cultural level, the socialisation level and the analytical level, are mutually interdependent and operate at the same time. The three have been isolated merely to make them explicit. The model is, like a map, a two-dimensional representation of a multidimensional entity which is much more complex.

The crane project accepts that the students (novices) have an important part to play in the culture and recognises this by encouraging socialisation between all members, the students, the English teachers and the engineering staff, in this project the latter are the laboratory technicians. Its is not alteric. It does not set up a goal, invention, to be reached with little or no active interaction between the students and their teachers, i.e. which bypasses the socialisation process by establishing a direct line between the analytical level and the goal. Nor does it set up an opposition between engineering and language. Instead, the project recognises, as anthropologists have done for some time, that all participants need to be active contributors, including the novices (the students). "The novice is not a passive recipient of socio-cultural knowledge but rather an active contributor to the meaning and outcome of interactions with other members of a social group" (Schieffelin & Ochs 1986: 165). The students recognise that they are active participants in the engineering culture and that the crane project is making a positive contribution to their acquisition of the culture of engineering in a multidimensional way, as the students recognised: "stimulates thinking", "learn something other than English", "teamwork". The students are recognised as being members of the culture, although novices, hence their positive comments.

The experts (the English and engineering teachers) are needed to determine the task and to be active contributors to the meaning and outcome of interactions. In Vygotskyian terms, the socially determined task is necessary because it

> "emphasizes the role of more knowledgeable members in facilitating learning. Novices are able to carry out particular tasks through 'guided interaction'; they develop skills in a 'zone of proximal development' as they move from guided or collaborative to independent action. Within this framework, cultural knowledge both organizes and is acquired through these communicative activities." (Schieffelin & Ochs 1986: 166)

The crane project establishes a multidimensional space in which all those involved have a place. Mimesis can be avoided by the experts being allocated different tasks. They can complement one another, and the language tasks can be those that the engineering teacher does not have time to do. This avoids mimesis, i.e. imitating exactly what is taught in the students' classes. It also avoids alterity, which places the language teacher outside the students' target culture, creating separate power bases which may fracture or ignore the relationships between the two kinds of "experts" and their novices, and encouraging language to be considered as a separate system.

The traditional disjunction between language teachers and subject teachers cannot continue because language "is continuous with other dimensions of social action, rather than constructing a privileged domain of commentary on them" (Merlan & Rumsey 1991: 223). It cannot continue because knowledge is an abstract entity that is given dynamic form by language. The construction of knowledge is dependent on the social dynamic between individuals because a single individual cannot carry the whole body of knowledge of a culture, it is just too diverse and complex.

> "Bodies of knowledge, structures of understanding, conceptions of the world, and collective representations are extrinsic to any individual and contain more information than any individual could know or learn. Culture encompasses variations in knowledge between individuals but such variation, although crucial to what an individual may know and to the social dynamic between individuals, does not have its locus within the individual." (Ochs & Schieffelin 1984: 284)

The social dynamic is achieved through socialisation between members of the culture. The ESP teacher provides the linguistic "means of access to particular domains, or spheres of social action" (Halliday 1993b: 45). The subject teacher provides the conceptual means of access.

Since culture does not reside within any one individual, but is within the collective body of members of the society, the need for members of the society to share their knowledge and experiences through socialisation with each other is essential. This follows the Vygotskyian principle that "higher mental functions are social before they are internalized by the individual, and that they become internalized by means of social interactions" (Pelissier 1991: 81). Everybody in the society needs to take part in the social interactions and thus be considered a member of the culture, whether expert

or novice. The socialisation model suggested here denies the traditional disjunction between subject and language teachers, with the students caught in the middle.

> "We cannot work with the traditional disjunction ... in literacy theory, according to which there are two human populations, the writers and the non-writers, with a clear dichotomy between them. Rather we should envisage a multidimensional space within which human beings construe experience, with certain regions within that space being taken up preferentially by different groups to resonate with the different conditions of their material existence." (Halliday 1993a: 13)

The ESP teacher has to be located within the multidimensional space that is the students' target culture, facilitating the students to enter the culture by providing tasks that resonate with it. This entails co-operation between all who are involved - content teachers, language teachers and students. In the crane project this co-operation is exemplified by the students carrying out their tests in one of the engineering laboratories with a technician and the language teacher both present. The technician's role is to explain the technical reasons for the collapse of the cranes, which the students incorporate into their written reports. The language teacher learns along with the students and is in a position to assess the content of this part of the report.

This is very different from the Spack model in which the concepts of the humanities culture are reproduced in the students and which places the ESP teacher outside the multidimensional space that the students are entering. "Students can learn general inquiry strategies, rhetorical principles, and tasks that can transfer to other course work" (1988: 40-41). There is no multidimensional space envisaged here, just a single essentialist level determined by the teacher, based on his/her humanities background. It is here that the problem appears in Spack's argument because, while rhetorical principles may be transferable because they are at the analytical level, tasks do not transfer to other course work because they are at the cultural level; they are socially constructed. Spack admits that, "each discipline offers a different system for examining experience, a different angle from looking at subject matter, a different kind of thinking" (1988: 38, citing Maimon et al. 1981). Becher has analysed the differences between academic disciplines. "In summary, the three disciplines [history, sociology and physics] display fundamental differences not only between types of evidence and procedures for proof, but also in the ways in which others' work is evaluated and in the modes in which arguments are generated, developed, expressed and reported. All these have implications for the underlying knowledge structure" (1987: 273). Bazerman (1988: 82-84) explains how physics has deliberately fostered a distinct cultural and rhetorical identity since the time of Newton. Humanities tasks do not resonate with engineering tasks, for example, so they do not help in initiating engineering students into their chosen disciplinary culture. So the Spack model is alteric because it sets up an

opposition between the ESP teacher's disciplinary culture and that of the students' chosen discipline.

The Spack model is mimetic because two cultures are imitated, but they are cultures socially determined by the ESP teacher - the teacher's disciplinary culture, the humanities, and his/her ethnic culture, specifically "background knowledge that readers are expected to bring to written texts (e.g. knowledge of American history)" (Spack 1988: 43). We should bear in mind Foucault's admonition:

> "what entitles its (the West's) culture, its science, its social organization, and finally its rationality itself, to be able to claim universal validity: was this not a mirage associated with economic domination and political hegemony?" (quoted in Young 1992: 9)

One result of the Spack model is cultural imperialism and the continued hegemony of the ESP teacher over the students because the students are neither novices of the teacher's ethnic culture nor his/her disciplinary culture.

The Widdowson model is clearly mimetic because it encourages parasitism. The ESP teacher is grafted onto the disciplinary culture, and is not a part of it. Language is considered to be an independent system (Bazerman 1988: 155). It is a tool, it is neutral and thus subservient to the disciplinary culture. As a result, language is marginalised.

This model has no place for the ESP teacher in the initiation of the students into their disciplinary culture because the ESP teacher is squarely outside the culture. At this end of the ESP spectrum, the Widdowson model creates an independent, neutral acultural world with little relevance to the students' worlds or that outwith the classroom. The result, as in the Spack model, is cultural imperialism because the culture is that of western science and engineering.

> "I assume that the concepts and procedures of scientific inquiry constitute a secondary cultural system which is independent of primary cultural systems associated with different societies. So although for example, a Japanese, and a Frenchman, have very different ways of life, beliefs, preoccupations, preconceptions, and so on deriving from the primary cultures of the societies they are members of, as scientists they have a common culture. In the same way, I take it that the discourse conventions which are used to communicate this common culture are independent of the particular linguistic means which are used to realize them." (Widdowson 1979: 51)

Rose and Rose have demonstrated that the neutrality of science is a myth most obviously because "a paradigm is never value-free. A paradigm is never neutral" (1980 [1971]: 28). Barron (1991: 174-176) has argued that science and engineering are part of the primary culture. The Widdowson model is thus alteric, the opposition being between the subject teacher within

the disciplinary culture and the ESP teacher outside it, and between Western culture and the cultures of the students. There is a direct route from the analytical level to the disciplinary cultural level, completely bypassing the socialisation level. The students are caught between the two levels. Since they have little or no chance to socialise in their discipline through language, they naturally opt for their chosen discipline, so marginalising language. They may also be caught between their culture and the western culture and they have to resolve this disjuncture, not always successfully. The model is a unidimensional space, rather than a multidisciplinary, multidimensional one.

The mimetic and alteric qualities of the Spack and Widdowson models, aping the West and setting up oppositions between the ESP teacher and the chosen disciplinary cultures of the students are educationally, culturally and politically unacceptable. They are educationally unacceptable because ESP is a part of education whose aim is to produce fit members of society. They are culturally unacceptable because they do not provide the students with tasks that are resonant with their disciplinary culture, and because they deny the opportunity to interact at the socialisation level. They create a route leading directly from the analytical level to the cultural level, resulting in cultural imperialism in which cultures are presumed to be similar. Unfortunately Halliday's wish is bot yet a reality: "I hope by now we are beyond the point where we have to pretend that everybody's world view is alike" (1993a: 11). Spack's and Widdowson's models recognise a single space, in which cultures do not work together and learn from each other. Cultures are dynamic systems that individually interpret input from others as they change. We need to create multidimensional systems in which different cultures work together.

The models are politically unacceptable because mimesis and alterity reinforce the hegemony of a dominant primary culture, which includes its science and engineering, and do not fulfil the educational objectives of producing fit members of society, i.e. those who are independent, and of maintaining the culture. Instead, they socially construct "an ideological common sense which holds for everyone" (Fairclough 1989: 86). Individual interpretation does not take place because "the materials we use should be those we fully understand" (Spack 1988: 41). There is no room in this model for any interpretation by either the teacher or the students. Materials should be "drawn from a specific field, if the area of study is one that the instructor is well versed in" because "they allow instructors to avoid placing themselves in the awkward position of presenting materials they do not fully understand" (Spack 1988: 43). If the teachers fully understand the materials, the amount of socialisation with the students will be considerably reduced because the channel of communication is one-way. This is a static world constructed entirely by the teacher. A world in which materials are objects, not discourses. A world in which cultures are static, immutable objects, not dynamic entities that are constantly changing.

The materials we use should be dynamic discourses, not static objects, constructed socially within the target culture, but allowing for interpretation by

each individual student. They should be those in which participants are not dichotomised, language is not abstracted out for emphasis, and events and actions are not marginalised. Events, actions and language are all part of a multidimensional exchange system in which everybody participates. Teachers, both language teachers and subject teachers, and students should be able to explore the multidimensional space of the two cultures together, each providing their own level of expertise of events, actions and language in a unified approach to social action.

Conclusion

The crane project exemplifies the multidimensional nature of disciplinary cultures, one in which all participants have important roles to play, including ESP teachers. This paper has provided a map to guide ESP teachers through this multidimensional space so that they can play their part in initiating the students into their disciplinary cultures. Like any map, it is a two-dimensional representation of a multidimensional entity and therefore cannot show the true complexity of the reality. The map shows three steps, or levels: the analytical level, which includes the linguistic and generic realisations of the cultures, the socialisation level where knowledge is constructed between all members of the cultures, and the cultural level, which consists of tasks that are socially constructed and which exemplify key concepts of the cultures.

ESP's role in the initiation of students into their disciplinary cultures is complex, consisting of several facets, educational, linguistic, cultural and political. The model outlined here does not assume simplistic oppositions between the ESP teachers' disciplines and those of the students, nor a 'common-sense' view of the world. Neither does it copy exactly the practices of the students' chosen disciplines. It encourages the construction of knowledge through socialisation, leading to the realisation of key concepts that are typical of the disciplinary culture, via the analysis of linguistic and generic features. Suppression or denial of socialisation leads to repression of the imagination and innovation of students by prescribing materials which are alteric or which mimic those in their chosen disciplines. "Where not repressed, the mimetic faculty may serve as a tool of repression in the 'civilizing' project of Enlightenment" (Taussig 1993: 254). Mimesis in education represses because it does not fulfil the educational aim of producing competent members of society. Society needs independent social actors, not mimics. Alterity represses because it leads to cultural imperialism, either dominance of the teachers' ethnic cultures, or their disciplinary cultures, or both. Mimesis and alterity both result in the marginalisation of language, and hence a confusion of separate unidimensional spaces instead of a unitary multidimensional space.

References

Barron, Colin. 1991. Material thoughts: ESP and culture. *English for Specific Purposes 10,3*: 173-187

Bazerman, Charles. 1988. **Shaping written knowledge: The genre and activity of the experimental article in science**. Madison: University of Wisconsin Press

Becher, Tony. 1984. The cultural view. In Burton R. Clark (ed). **Perspectives on higher education** (pp. 165-198). Berkeley: University of California Press

Becher, Tony. 1987. Disciplinary discourse. *Studies in Higher Education 12,3*: 261-274

Childs, Carla P. and Patricia M. Greenfield. 1980. Informal modes of learning and teaching: The case of Zinacanteco weaving. In Neil Warren (ed). **Studies in cross-cultural psychology. Volume 2** (pp. 269-316). London: Academic Press

Fairclough, Norman. 1989. **Language and power**. London: Longman

Halliday, M.A.K. 1993a. New ways of meaning: A challenge to applied linguistics. In M.A.K. Halliday. **Language in a changing world** (pp. 1-41). Occasional paper no. 13. Applied Linguistics Association of Australia

Halliday, M.A.K. 1993b. The act of meaning. In M.A.K. Halliday. **Language in a changing world** (pp. 42-61). Occasional paper no. 13. Applied Linguistics Association of Australia

Higgins, J.S., G.C. Maitland, J.D. Perkins, S.M. Richardson and D. Warren Piper. 1989. Identifying and solving problems in engineering design. *Studies in Higher Education 14,2*: 169-181

Lave, J. 1977. Cognitive consequences of traditional apprenticeship training in West Africa. *Anthropology and Education Quarterly 8,3*: 177-180

Long, M.H. 1985. A role for instruction in second language acquisition. In K. Hyltenstam & M. Pienemann (eds). **Modelling and assessing second language acquisition. Clevedon**: Multilingual Matters

Long, M.H. and G. Crookes. 1986. Intervention points in second language classroom processes. *Working Papers 5,2*. Department of English as a Second Language, University of Hawaii

Merlan, Francesca and Alan Rumsey. 1991. **Ku Waru: Language and segmentary politics in the western Nebilyer Valley, Papua New Guinea**. Cambridge: Cambridge University Press

Mohan, Bernard. 1986. **Language and content**. Reading, MA: Addison-Wesley

Mohan, Bernard and Sondra M. Smith. 1992. Context and cooperation in academic tasks. In David Nunan (ed). **Collaborative language learning and teaching** (pp. 81-99). Cambridge: Cambridge University Press

Nunan, David. 1988. **The learner-centred curriculum: A study in second language teaching**. Cambridge: Cambridge University Press

Ochs, Elinor. 1988. **Culture and language development: Language acquisition and language socialization in a Samoan village**. Cambridge: Cambridge University Press

Ochs, Elinor and Bambi B. Schieffelin. 1984. Language acquisition and socialization: Three developmental stories and their implications. In R. Shweder & R. LeVine (eds). **Culture theory: Essays on mind, self and emotion** (pp. 276-320). New York: Cambridge University Press

Pelissier, Catherine. 1991. The anthropology of teaching and learning. *Annual Review of Anthropology 20*: 75-95

Rose, Steven and Hilary Rose. 1980. The myth of the neutrality of science. In Rita Arditti, Pat Brennan & Steve Cavrak (eds). **Science and liberation** (pp. 17-32). Montreal: Black Rose Books (originally published in 1971)

Schieffelin, Bambi B. and Elinor Ochs. 1986. Language socialization. *Annual Review of Anthropology 15*: 163-191

Spack, Ruth. 1988. Initiating ESL students into the academic discourse community: How far should we go? *TESOL Quarterly 22,1*: 29-51

Taussig, Michael. 1993. **Mimesis and alterity: A particular history of the senses**. New York: Routledge

Widdowson, H.G. 1979. **Explorations in applied linguistics**. Oxford: Oxford University Press

Widdowson, H.G. 1983. **Learning purpose and language use**. Oxford: Oxford University Press

Young, Robert. 1992. **White mythologies: Writing history and the West**. London: Routledge